

CP

**MULTIPOLE
POWER CONNECTORS**

***MOTOR TO BOGIE
INTERVEHICLE
JUMPERS
JUNCTION BOXES***



Radiall 

 **VanSystem**

Since 1952, Radiall Sa have been enabling the future through collaboration with our customers. The results are a range of innovative and award-winning products that customers trust for unrivaled repeatability and performance.

Radiall Sa are a global company with facilities around the world that specializes in manufacturing the highest quality interconnect components to support the most demanding applications.

At Radiall, you can rely on us to be the industry's global market leader.

VanSystem is a company founded in Lombardy - Italy, which has been operating since 1985 in the industrial market.

Since 2015 VanSystem is a Radiall company.

Besides connectors with screw or bayonet coupling complying with the Mil-DTL-5015 standard, VanSystem designs and manufactures non-standard products for special applications.

One of VanSystem's strong points is an agile and dynamic organizational structure which enables direct and constant interaction with customers in order to meet all their requirements and build solid, long-term partnerships.

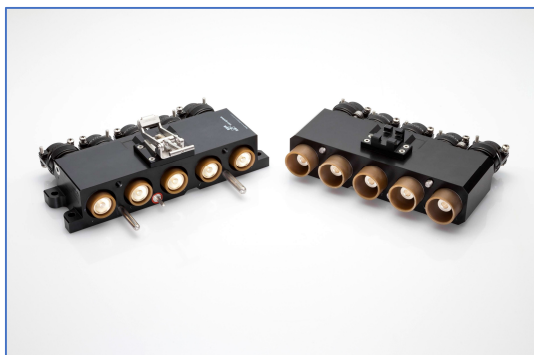
The VanSystem team's professionalism, skill and commitment are at your service to help you achieve the solution you are looking for.

VanSystem's Quality System is qualified according to ISO 9001:2015 and ISO/TS 22163:2017 IRIS Certification™ rules:2017 (International Railway Industry Standard).



Characteristics

CP connectors: up to 1.000A



CP multipole connectors has been developed for motor and power connection in Railway application. Suitable for harsh environments, could be used for car-to-car jumpers, power distributions and traction motors.

APPLICATIONS

- Railway
- Energy
- Naval
- Industrial

Materials and finishes

<i>External metal shells</i>	Aluminum alloy
<i>Shell finishes (according to the type)</i>	Hard black anodized Black polyurethanic varnish Gray anodic oxidation
<i>Internal Insulator</i>	Thermoplastic resin Fire behaviour according to EN45545-2
<i>Contacts</i>	High copper content alloy Silver plating
<i>Gasket</i>	Flame retardant silicone compound
<i>Screws and locking levers system</i>	Stainless steel
<i>Cable retention</i>	MS3057 type B/C cable clamp or cable gland

International Standard Document Compliance

- EN 50124-1: Railway applications - Insulation coordination
- IEC 60077-1: Railway applications - Electric equipment for rolling stock
- EN 45545-2: Railway applications - Fire protection on railway vehicles
- NFPA 130 (ASTM E 162, ASTM E 662): Standard for Fixed Guideway Transit and Passenger Rail Systems
- UNI CEI 11170-3 : Guidelines for railway vehicle protection for tramways and with guided rail
- NFF 16-102: Railway Rolling Stock - Fire Behavior
- EN 50467: Railway applications - Rolling stock - Electrical connectors, requirements and test methods
- IEC 61373: Railway applications. Rolling stock equipment. Shock and vibration tests
- IEC 60529: Degrees of protection provided by enclosures (IP Code)
- European Directive 2011/65: RoHS complying

Features and Benefits

- *Robust Connection*
 - Fully protected connectors: no risk to damage the contacts thanks the robust shell
 - Could be supplied with conductive plating and the proper rear accessory
- *Easy installation*
 - Fast and reliable coupling with alignment columns
 - Accessories for fastening cable/conduit fixation
- *Suitable for harsh environments (adapted for outdoor use)*
 - Waterproof connection
 - Dust proof
 - Corrosion resistant

Introduction

MOTOR TO BOGIE, INTERVEHICLE, JUMPERS

CP520911-410

2 poles, 410A

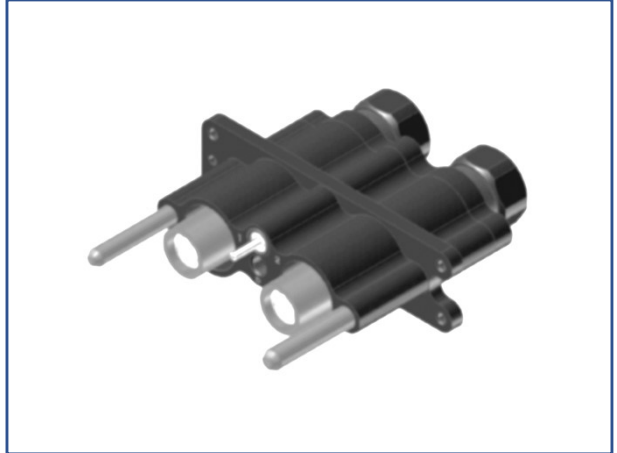
screw locking system



CP520911-DC

2 poles, 1.000A

screw locking system



CP160913

3 poles, 240A

screw locking system



CP030616

3 poles, 350A

screw locking system



CP520911-3PH

4 poles, 500A

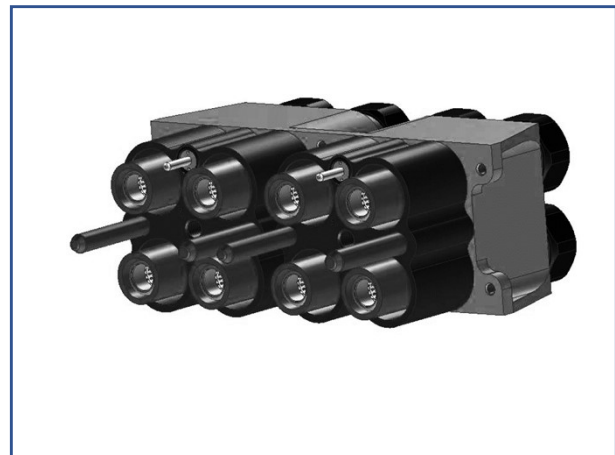
screw locking system



CP520911

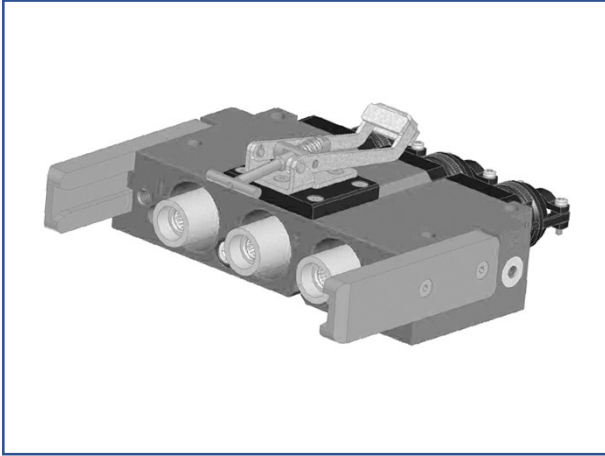
8 poles, 1.000A

screw locking system

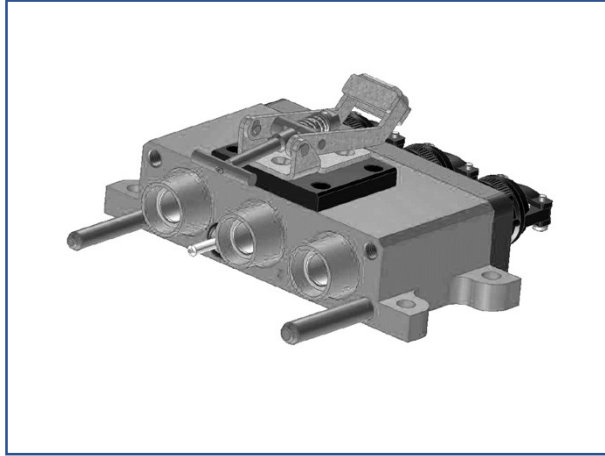


Introduction

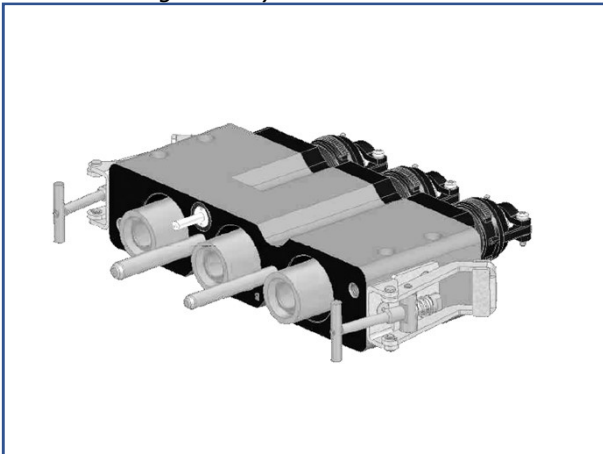
CP060212
3 poles, 350A
single locking lever system



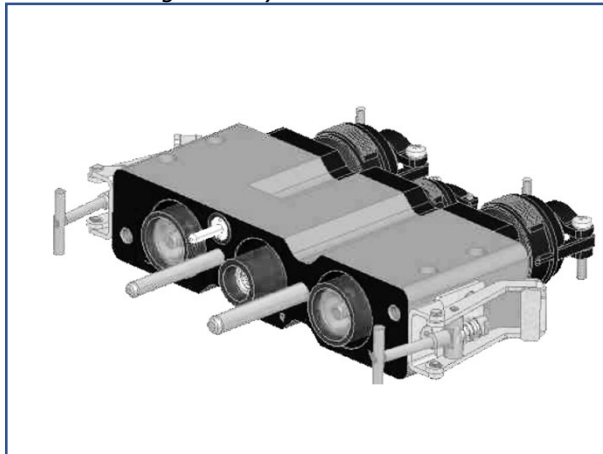
CP150916
3 poles, 550A
single locking lever system



CP160613-450
3 poles, 450A
double locking levers system



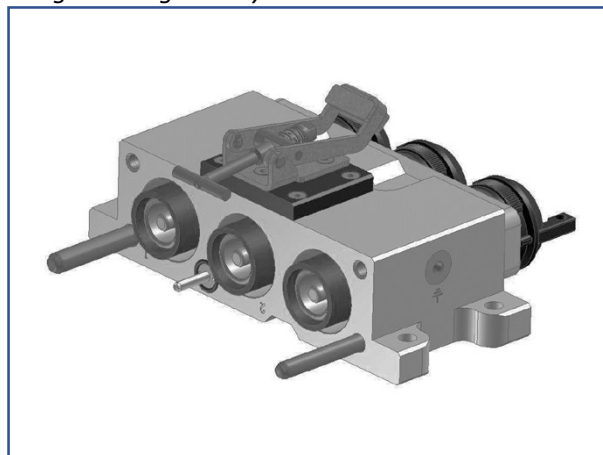
CP160613-900
3 poles, 900A
double locking levers system



CP581111
3 poles, 400A - double locking levers system with
anti-vibration - elastic supports

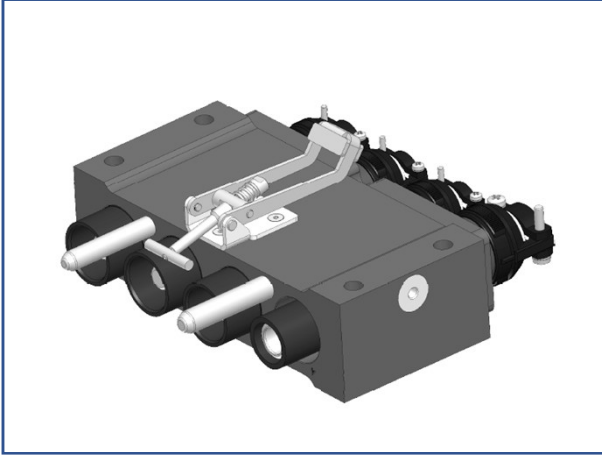


CP020113
3 poles, 800A
single locking lever system

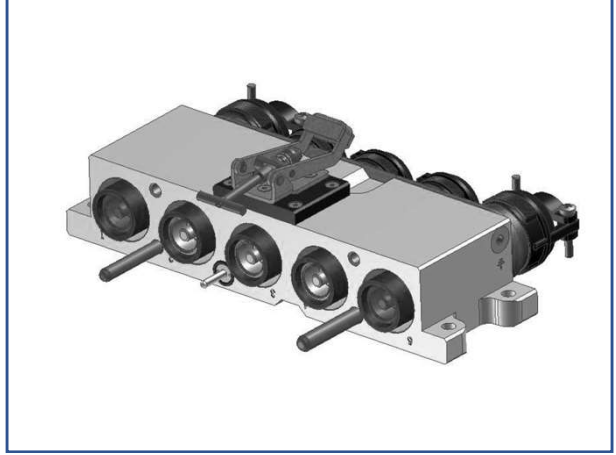


Introduction

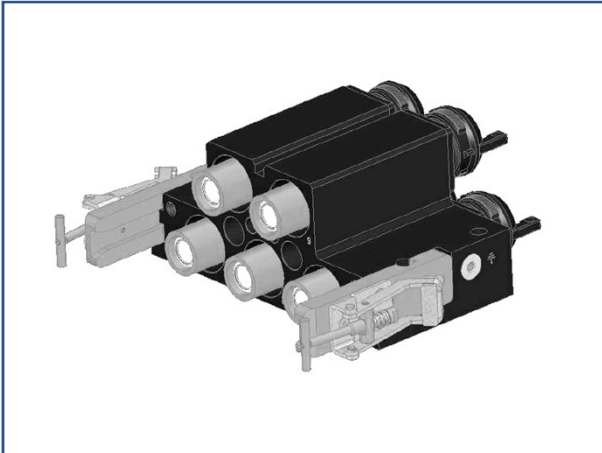
CP291215
 4 poles, 600A
 single locking lever system



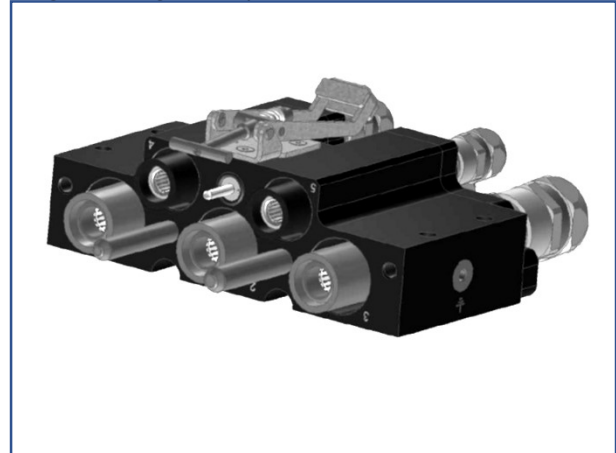
CP020113
 5 poles, 1.000A
 single locking lever system



CP220211
 5 poles, 600A/700A
 double locking levers system



CP191013
 5 poles, 675A
 single locking lever system



JUNCTION BOXES

CP120616 - T type junction box
for 6 cable section 50mm²
225A / 450A



CP060414 - T type junction box
entry of 3 feeding cables /exit of 6 cables
225A / 450A



CP331112 - Y type junction box
entry of 3 feeding cables /exit with 2 connectors
250A / 500A



CP010718 - T type junction box
for 6 cable section 50mm²
225A / 450A



CP520911 - Connector with 2 contacts + ground contact



Main application: Battery connection

*Conforms European norm EN50467
"Railway applications - rolling stock -
electrical connectors requirements and test
methods" (where applicable)*

Order Number	Description
289015 (CP520911-2-06P-70-M016A)	Connector with 2 male contacts + ground contact crimp termination for 70mm ² cables straight plug
289014 (CP520911-2-03S-70-M016A)	Connector with 2 female contacts + ground contact crimp termination for 70mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	300V (PD4 – OV4)
Test Voltage	1.750Vac
Working current	410A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-40°C ÷ +100°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Tightening screw
Mating endurance (IEC 61300-2-2)	500 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

Z-B.Bus

CP520911 - Connector with 2 contacts + ground contact



Main application: Battery connection

Conforms European norm EN50467
"Railway applications - rolling stock -
electrical connectors requirements and test
methods" (where applicable)

Order Number	Description
289017 (CP520911-2-06P-70-M016B)	Connector with 2 male contacts + ground contact crimp termination for 70mm ² cables straight plug
289016 (CP520911-2-03S-70-M016B)	Connector with 2 female contacts + ground contact crimp termination for 70mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	3.600V (PD4 - OV3)
Test Voltage	10.500Vac
Working current	410A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV3
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-40°C ÷ +100°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Tightening screw
Mating endurance (IEC 61300-2-2)	500 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

CP520911 - 2 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289019 (CP520911-2-06P-185-M016)	Connector with 2 male contacts + ground contact crimp termination for 185mm ² cables straight plug
289018 (CP520911-2-03S-150-M016)	Connector with 2 female contacts + ground contact crimp termination for 150mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	3.600V (PD4 – OV3)
Test Voltage	10.700V
Working current	1.000A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV3
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-40°C ÷ +100°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Tightening screw
Mating endurance (IEC 61300-2-2)	500 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

Z-DC

Product Range

CP520911 - Connector with 4 contacts + ground contact



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289013 (CP520911-4-06P-50-M016) 289011 (CP520911-4-06P-95-M016)	Connector with 4 male contacts + ground contact crimp termination for 50mm ² or 95mm ² cables straight plug
289012 (CP520911-4-03S-70-M016) 289010 (CP520911-4-03S-95-M016)	Connector with 4 female contacts + ground contact crimp termination for 70mm ² or 95mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	660V (PD4 – OV4)
Test Voltage	10.500Vac
Working current	500A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-40°C ÷ +100°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Tightening screw
Mating endurance (IEC 61300-2-2)	500 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

3PH

CP160913 - 3 poles rectangular power connector



Main application: Motor to vehicle connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289052 (CP160913-3-04P-M001)	Power receptacle connector with 3 male contacts + ground contact (CP160913)
289053 (CP160913-3-04S-M001)	Power plug connector with 3 female contacts + ground contact (CP160913)

ELECTRICAL CHARACTERISTICS

Rated insulating voltage	900V (PD4 - OV4)
Test Voltage (EN 60077-1)	3.300Vcc
Working current (80°C)	240A
Max. current (20°C)	370A
Starting current (80°C)	330A for 15 sec.
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-55°C ÷ +125°C
IP Protection degree (EN 60529)	IP67 (when mated)

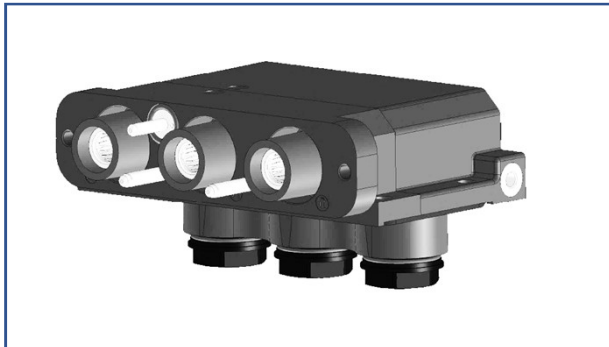
MECHANICAL CHARACTERISTICS

Mating system	Tightening screws
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

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Product Range

CP030616 - 3 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289171 (CP030616-3-06P)	Connector with 3 male contacts + ground contact crimp termination for 50mm ² cables straight plug
289170 (CP030616-38-09S)	Connector with 3 female contacts + ground contact crimp termination for 50mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	3.250V (PD4 – OV3)
Test Voltage (EN 60077-1)	9.800V
Working current	350A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV3
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-55°C ÷ +250°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Tightening screw
Mating endurance (IEC 61300-2-2)	150 mating cycles minimum
Shock and vibrations tests (EN 61373)	Category 2, bogie mounted

TS

CP520911 - 8 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289007 (CP520911-8-03S-240-M016)	Connector with 8 female contacts + ground contact crimp termination for 240mm ² cables rear panel mounting receptacle

To be mated with 2 connectors CP520911 – 4 poles (page 13)

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	2.100V (PD4 - OV4)
<i>Test Voltage</i>	7.500V
<i>Working current</i>	1000A
<i>Air and creepage distances</i>	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
<i>Contact resistance</i>	< 0,5 mΩ
<i>Insulating resistance</i>	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-40°C ÷ +100°C
<i>IP Protection degree (EN 60529)</i>	IP67 (when mated)

MECHANICAL CHARACTERISTICS

<i>Mating system</i>	Tightening screw
<i>Mating endurance (IEC 61300-2-2)</i>	500 mating cycles minimum
<i>Shock and vibrations tests (EN 61373)</i>	Body mounted, cat. 1, class B

Z-Lcm

Product Range

CP520911 - 4 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289008 (CP520911-4-06P-240-M016A)	Connector with 4 male contacts + ground contact crimp termination for 240mm ² cables straight plug – polarization A
289008 (CP520911-4-06P-240-M016B)	Connector with 4 male contacts + ground contact crimp termination for 240mm ² cables straight plug – polarization B

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	2.100V (PD4 - OV4)
Test Voltage	7.500Vac
Working current	1.000A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

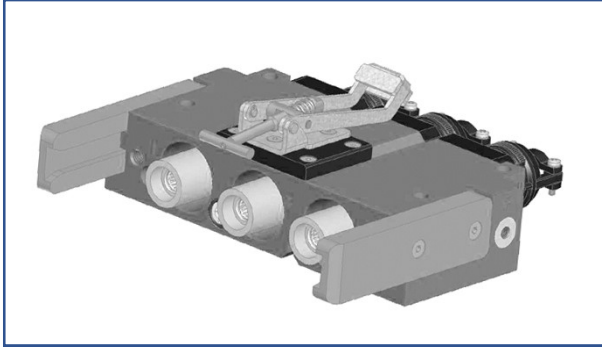
Connectors working temperature	-40°C ÷ +100°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Tightening screw
Mating endurance (IEC 61300-2-2)	500 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

Z-LCM

CP060212 - 3 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289002 (CP060212-3-06P)	Connector with 3 male contacts + ground contact crimp termination for 95mm ² cables straight plug
289001 (CP060212-3-09S)	Connector with 3 female contacts + ground contact crimp termination for 95mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	3600V (PD4 - OV4)
<i>Test Voltage</i>	9.200Vac
<i>Working current</i>	350A
<i>Air and creepage distances</i>	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
<i>Contact resistance</i>	< 0,5 mΩ
<i>Insulating resistance</i>	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-40°C ÷ +100°C
<i>IP Protection degree (EN 60529)</i>	IP67 (when mated)

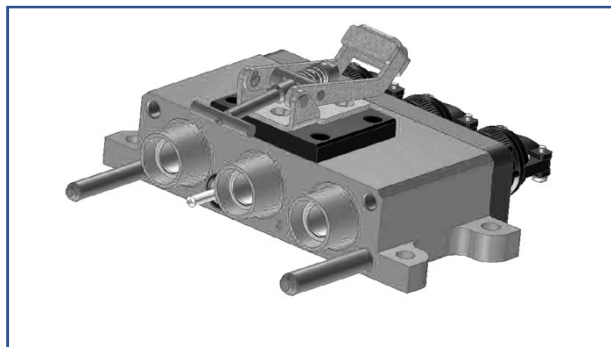
MECHANICAL CHARACTERISTICS

<i>Mating system</i>	Single locking lever
<i>Mating endurance (IEC 61300-2-2)</i>	200 mating cycles minimum
<i>Shock and vibrations tests (EN 61373)</i>	Body mounted, cat. 1, class B

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Product Range

CP150916 - 3 poles rectangular power connector



Main application: Battery connection

*Conforms European norm EN50467
"Railway applications - rolling stock -
electrical connectors requirements
and test methods" (where applicable)*

Order Number	Description
289133 (CP150916-3-06P)	Connector with 3 male contacts + ground contact crimp termination for AWG 1/0 cables straight plug
289132 (CP150916-3-06S)	Connector with 3 female contacts + ground contact crimp termination for AWG 1/0 cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	3.000V (PD4 – OV3)
Test Voltage	9.200V
Working current	550A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV3
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

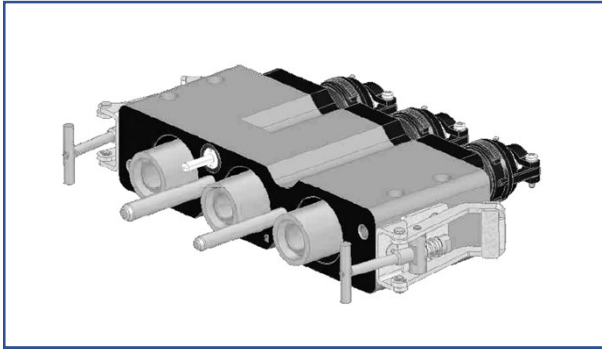
Connectors working temperature	-55°C ÷ +125°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Single locking lever
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

Clem

CP160613 - 3 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289106 (CP160613-3-06P M022)	Connector with 3 male contacts + ground contact crimp termination for MCM313 - 160mm ² cables straight plug
289107 (CP160613-3-06S M023)	Connector with 3 female contacts + ground contact crimp termination for MCM313 - 160mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	750V (PD4 - OV4)
Test Voltage	3.300V
Working current	450A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-40°C ÷ +125°C
IP Protection degree (EN 60529)	IP67 (when mated)

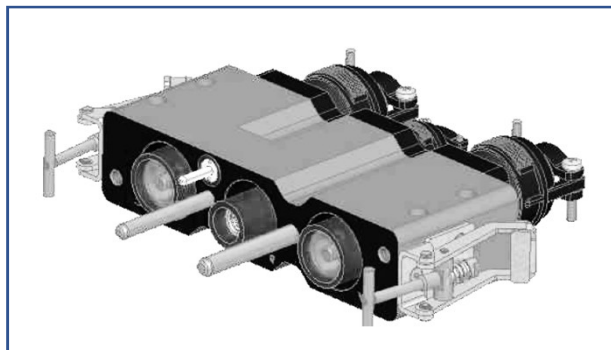
MECHANICAL CHARACTERISTICS

Mating system	Double locking levers
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Category 2, bogie mounted

Mai-Hon

Product Range

CP160613 - 3 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289108 (CP160613-3-06P M020)	Connector with 3 male contacts + ground contact 2 crimp termination for MCM 646 - 327mm ² cables and 1 crimp termination or cable AWG 2 - 33mm ² straight plug
289109 (CP160613-3-06S M021)	Connector with 3 female contacts + ground contact 2 crimp termination for MCM 646 - 327mm ² cables and 1 crimp termination or cable AWG 2 - 33mm ² rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	750V (PD4 - OV4)
Test Voltage	3.300V
Working current	900A (AWG 2: 150A)
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-40°C ÷ +125°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Double locking levers
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

Mia-Hon

CP581111 - 3 poles rectangular power connector



Main application: Motor to vehicle connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

P/N	Description
289026 (CP581111-3-02P 120)	Connector with 3 male contacts + ground contact 2 crimp termination for 120mm ² cables and straight plug
289027 (CP581111-3-06A 120)	Connector with 3 female contacts + ground contact 2 crimp termination for 120mm ² cables and rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulating voltage	2.800V (PD4 - OV4)
Test Voltage (EN 60077-1)	8.700V
Working current	400A
Air and creepage distances	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

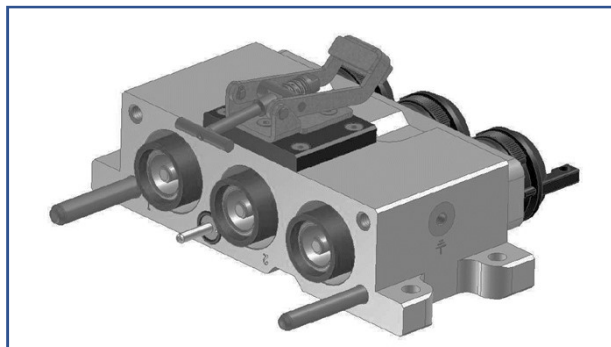
Connectors working temperature	-55°C ÷ +125°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	alignment guides for assisted coupling, 2 mechanical locking lever and a secure lock screw with Nord-lock vibration proof washers
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Category 2 bogie mounted Fixed connector supplied with anti-vibration elastic supports

Product Range

CP020113 - 3 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

CP motor to vehicle

Order Number	Description
289078 (CP020113-3-09P M019)	Connector with 3 male contacts + ground contact crimp termination for 150mm ² or 180mm ² cables straight plug
289078 (CP020113-3-09S M019)	Connector with 3 female contacts + ground contact crimp termination for 150mm ² or 180mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	1.500Vcc
Test Voltage	5.600Vca
Working current	800A
Air and creepage distances	According to EN 50124-1
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

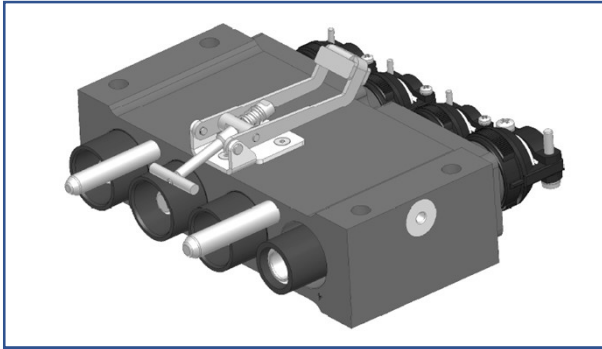
Connectors working temperature	-55°C ÷ +180°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Single locking lever
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

Men

CP291215 - 2 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289160 (CP291215-4-09P M027)	Connector with 3 male contacts Finger Tested + 1 female contact + ground contact, 3 crimp termination for 120mm ² and 1 crimp termination for 150mm ² cables straight plug
289168 (CP291215-4-09S M027)	Connector with 2 female contacts Finger Tested + 1 male contact + ground contact, 3 crimp termination for 120mm ² and 1 crimp termination for 150mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	2.000V (PD4 - OV4)
<i>Test Voltage</i>	6.800V
<i>Working current</i>	800A
<i>Air and creepage distances</i>	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
<i>Contact resistance</i>	< 0,5 mΩ
<i>Insulating resistance</i>	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-40°C ÷ +125°C
<i>IP Protection degree (EN 60529)</i>	IP67 (when mated)

MECHANICAL CHARACTERISTICS

<i>Mating system</i>	Single locking lever Alignment polarized columns
<i>Mating endurance (IEC 61300-2-2)</i>	200 mating cycles minimum
<i>Shock and vibrations tests (EN 61373)</i>	Category 2 bogie mounted

CP020113 - 5 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

Order Number	Description
289078 (CP020113-3-09P M019)	Connector with 5 male contacts + ground contact, 2 crimp termination for 240mm ² and 3 crimp termination for 150mm ² or 185mm ² cables straight plug
289079 (CP020113-3-09S M019)	Connector with 5 female contacts + ground contact, 2 crimp termination for 240mm ² and 3 crimp termination for 150mm ² or 185mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	1.500Vcc (PD4 - OV4)
Test Voltage	5.600V
Working current	Up to 1.000A
Air and creepage distances	According to EN 50124-1
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-55°C ÷ +180°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Single locking lever Alignment polarized columns
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Body mounted, cat. 1, class B

Men

CP220211 - 5 poles rectangular power connector



Main application: Battery connection

*Conforms European norm EN50467
"Railway applications - rolling stock -
electrical connectors requirements and test
methods" (where applicable)*

Order Number	Description
289021 (CP220211-5-06P-120/185-M001)	Connector with 5 male contacts + ground contact 4 crimp termination for 120mm ² cables and 1 crimp termination for 185mm ² cables straight plug
289020 (CP220211-5-06S-120/185-M001)	Connector with 5 female contacts + ground contact 4 crimp termination for 120mm ² cables and 1 crimp termination for 185mm ² cables rear panel mounting receptacle

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	750V (PD4 - OV4)
<i>Working current</i>	600A / 700A
<i>Air and creepage distances</i>	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4
<i>Contact resistance</i>	< 0,5 mΩ
<i>Insulating resistance</i>	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-40°C ÷ +100°C
<i>IP Protection degree (EN 60529)</i>	IP67 (when mated)

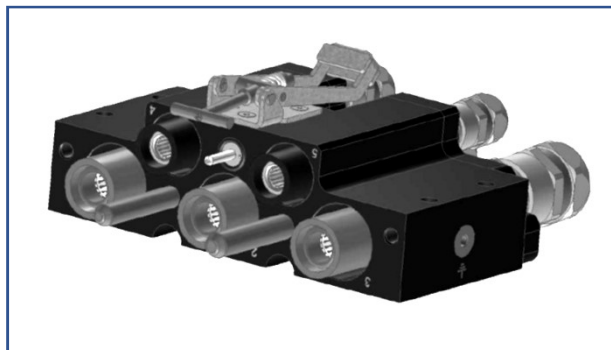
MECHANICAL CHARACTERISTICS

<i>Mating system</i>	Double locking levers
<i>Mating endurance (IEC 61300-2-2)</i>	500 mating cycles minimum
<i>Shock and vibrations tests (EN 61373)</i>	Category 2 bogie mounted

Tai

Product Range

CP191013 - 5 poles rectangular power connector



Main application: Battery connection

Conforms European norm EN50467 "Railway applications - rolling stock - electrical connectors requirements and test methods" (where applicable)

** Consult our commercial office*

<i>Order Number</i>	<i>Description</i>
*	<i>Connector with 5 male contacts + ground contact 3 crimp termination for 150mm² cables and 2 crimp termination for 50mm² cables straight plug</i>
*	<i>Connector with 5 female contacts + ground contact 3 crimp termination for 150mm² cables and 2 crimp termination for 50mm² cables rear panel mounting receptacle</i>

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	3.000V (PD4 – OV3)
<i>Test Voltage</i>	3.600V
<i>Working current</i>	675A
<i>Air and creepage distances</i>	<i>According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV3</i>
<i>Contact resistance</i>	< 0,5 mΩ
<i>Insulating resistance</i>	> 5 GΩ

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-60°C ÷ +125°C
<i>IP Protection degree (EN 60529)</i>	IP67 (when mated)

MECHANICAL CHARACTERISTICS

<i>Mating system</i>	Single locking lever
<i>Mating endurance (IEC 61300-2-2)</i>	200 mating cycles minimum
<i>Shock and vibrations tests (EN 61373)</i>	Category 2 bogie mounted

Gim

CP120616 – for 6 cables section 50mm²



Main application: Junction and Distribution Boxes

Order Number	Description
289169 (CP120616)	<i>Junction Box: 3 power cables entry size 120mm² (MS 3057 20C Ø 18mm - Ø 25mm) – 6 cables exit size 50mm² (M32: Ø 11mm - Ø 21mm)</i>

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	750Vac (PD4 - OV4)
<i>Test Voltage</i>	3.300Vac
<i>Working current</i>	225 A / 450A
<i>Air and creepage distances</i>	<i>According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4</i>

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-40°C ÷ +125°C
<i>IP Protection degree (EN 60529)</i>	<i>IP67 (when mated)</i>

MECHANICAL CHARACTERISTICS

<i>External metal shell</i>	Aluminum alloy – black varnish finishes
<i>Screws</i>	Stainless steel
<i>Shock and vibrations tests (EN 61373)</i>	Category 2 bogie mounted

Product Range

CP060414 – 3 power cables entry – 6 cables exit



Main application: Junction and Distribution Boxes

CP Junction Box

Order Number	Description
289110 (CP060414)	<i>Junction Box: 3 power cables entry size MCM313 (MS 3057 20C Ø 15,5mm - Ø 23,8mm) – 6 cables exit size AWG 2/0 (M32 Ø11mm - Ø20mm)</i>

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	750V (PD4 - OV4)
<i>Test Voltage</i>	3.300V
<i>Working current</i>	225 A / 450A
<i>Air and creepage distances</i>	<i>According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4</i>

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-40°C ÷ +120°C
<i>IP Protection degree (EN 60529)</i>	<i>IP67 (when mated)</i>

MECHANICAL CHARACTERISTICS

<i>External metal shell</i>	Aluminum alloy – black anodic oxidation
<i>Screws</i>	Stainless Steel

Mia

CP331112 – for 6 cables section 185mm²



Main application: Junction and Distribution Boxes

<i>Order Number</i>	<i>Description</i>
289082 (CP331112)	<i>Junction Box: 3 power cables entry size 185mm² (MS 3057 24C Ø16mm - Ø 23,8mm) – exit with 2 connectors (to be ordered separately)</i>

To be mated with connector CP331112-3-06S (2 connectors per box)

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	1.500V
<i>Test Voltage</i>	5.600V
<i>Working current</i>	250 A / 500A
<i>Air and creepage distances</i>	<i>According to EN 50124-1</i>

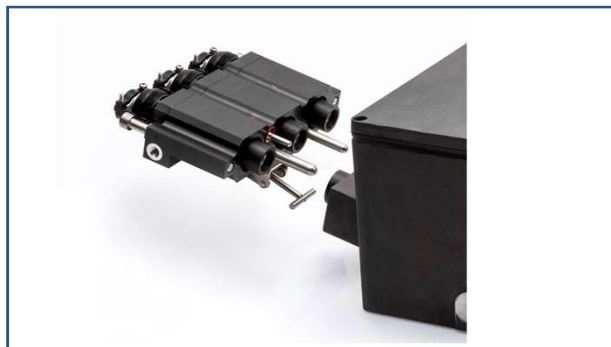
ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-40°C ÷ +120°C
<i>IP Protection degree (EN 60529)</i>	<i>IP67 (when mated)</i>

MECHANICAL CHARACTERISTICS

<i>External metal shell</i>	Aluminum alloy – black varnish finishes
<i>Screws</i>	Stainless steel
<i>Shock and vibrations tests (EN 61373)</i>	Category 2 bogie mounted

CP331112 - 3 poles rectangular power connector



Main application: Junction Boxes

Conforms European norm EN50467
"Railway applications - rolling stock -
electrical connectors requirements
and test methods" (where applicable)

Order Number	Description
289080 - 289081 (CP331112-3-06S 50-M017) 289033 - 289034 (CP331112-3-06S 95-M017)	Connector with 3male contacts + ground contact 3 crimp termination 50mm ² -95mm ² (MS 3057 20C Ø16mm - Ø23,8mm) - straight plug

To be mated with box CP331112.

ELECTRICAL CHARACTERISTICS

Rated insulated voltage	1.500Vca
Test Voltage	5.600Vca
Working current	250A
Air and creepage distances	According to EN 50124-1
Contact resistance	< 0,5 mΩ
Insulating resistance	> 5 GΩ

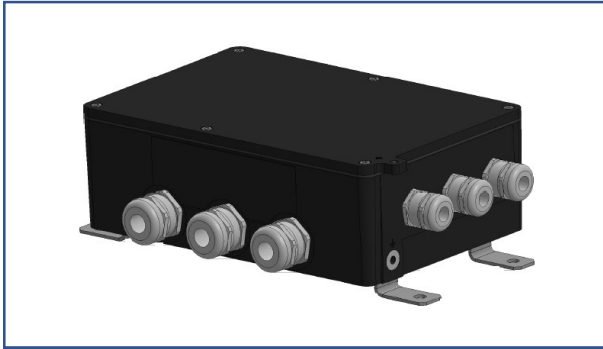
ENVIRONMENTAL CHARACTERISTICS

Connectors working temperature	-40°C ÷ +120°C
IP Protection degree (EN 60529)	IP67 (when mated)

MECHANICAL CHARACTERISTICS

Mating system	Single locking lever
Mating endurance (IEC 61300-2-2)	200 mating cycles minimum
Shock and vibrations tests (EN 61373)	Category 2 bogie mounted

CP010718 - 3 power cables entry – 6 cables exit



Main application: Junction and Distribution Boxes

Order Number	Description
*	Junction Box: 3 power cables entry size 120mm ² (M40 Ø19mm - Ø 28mm) - 6 cables exit size 50mm ² (M32 Ø11mm - Ø21mm)

**Consult our commercial office*

ELECTRICAL CHARACTERISTICS

<i>Rated insulated voltage</i>	750Vac (PD4 - OV4)
<i>Test Voltage</i>	3.300Vac
<i>Working current</i>	225 A / 450A
<i>Air and creepage distances</i>	According to EN 50124-1 Pollution degree: PD4 with protection degree IP67 (mated connectors) Over-voltage category: OV4

ENVIRONMENTAL CHARACTERISTICS

<i>Connectors working temperature</i>	-55°C ÷ +125°C
<i>IP Protection degree (EN 60529)</i>	IP67 (when mated)
<i>Shock and vibrations tests (EN 61373)</i>	Category 2 bogie mounted

MECHANICAL CHARACTERISTICS

<i>External metal shell</i>	Aluminum alloy – black anodic oxidation
<i>Screws</i>	Stainless Steel
<i>Bracket</i>	Stainless Steel – Neutral passivation
<i>Thermoplastic Resin</i>	Fire behaviour according EN 45545-2

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SAFETY**Information regarding the use of the product within recommended safety limits**

To use the connectors described in this catalogue according to the necessary safety requirements we suggest you apply the following criteria:

- use the connectors and connected cables within their electrical and environmental limits
- follow the characteristics of each version (shell, class and type of strain relief) and carefully choose the appropriate connector for the required use
- make sure to respect the procedures regarding the correct assembly of connectors and the crimping of contacts
- any connector damaged during shipment, storage, assembly or use should be replaced
- never uncouple the connectors when under power
- always protect the parts against shock when the circuit is under power
- always check the circuit before putting it under power
- consult Radiall VanSystem Srl if in doubt
- the user must take final responsibility for electrical safety Radiall VanSystem Srl reserves the right to amend the specifications of this catalogue without issuing prior notice.

For the instructions concerning assembly and crimping of contacts please consult the appropriate tools manuals.

We recommend to respect the following general rules:

- to be used always the tools recommended by Radiall VanSystem's catalogue or manuals
- to be applied the suggested norms for tool maintenance and calibration

DO NOT USE ALTERNATIVE GREASES OR OILS which could damage the insert and affect the functionality of the connector.

Radiall VanSystem Srl reserves the right to amend the specifications of this catalogue without issuing prior notice.



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